

# **EXHIBIT F**

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**DOCKETED**

Date:  
**MAILED**

**APR 02 2008**

CENTRAL REEXAMINATION UNIT

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

REEXAMINATION CONTROL NO. : 95000328  
PATENT NO. : 6892211  
ART UNIT : 3992

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above identified ex parte reexamination proceeding (37 CFR 1.550(f)).

Where this copy is supplied after the reply by requester, 37 CFR 1.535, or the time for filing a reply has passed, no submission on behalf of the ex parte reexamination requester will be acknowledged or considered (37 CFR 1.550(g)).

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**DLA PIPER US LLP**



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
95/000,328	01/14/2008	6892211	347155-29	4693

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MOUNTAIN VIEW, CA 94039-0013

EXAMINER

WEAVER, SCOTT LOUIS

ART UNIT	PAPER NUMBER
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3992

MAIL DATE	DELIVERY MODE
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04/02/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**ORDER GRANTING/DENYING  
REQUEST FOR INTER PARTES  
REEXAMINATION**

Control No.

95/000,328

Examiner

SCOTT L. WEAVER

Patent Under Reexamination

6892211

Art Unit

3992

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

The request for *inter partes* reexamination has been considered. Identification of the claims, the references relied on, and the rationale supporting the determination are attached.

Attachment(s): ☐ PTO-892 ☒ PTO/SB/08 ☒ Other: DECISION ON REQUEST

1. ☒ The request for *inter partes* reexamination is GRANTED.

☐ An Office action is attached with this order.

☒ An Office action will follow in due course.

2. ☐ The request for *inter partes* reexamination is DENIED.

This decision is not appealable. 35 U.S.C. 312(c). Requester may seek review of a denial by petition to the Director of the USPTO within ONE MONTH from the mailing date hereof. 37 CFR 1.927. EXTENSIONS OF TIME ONLY UNDER 37 CFR 1.183. In due course, a refund under 37 CFR 1.26(c) will be made to requester.

**All correspondence** relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of this Order.

<b>Transmittal of Communication to Third Party Requester Inter Partes Reexamination</b>	Control No.	Patent Under Reexamination	
	95/000,328	6892211	
	Examiner	Art Unit	
	SCOTT L. WEAVER	3992	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address. --

Enclosed is a copy of the latest communication from the United States Patent and Trademark Office in the above-identified reexamination proceeding. 37 CFR 1.903.

Prior to the filing of a Notice of Appeal, each time the patent owner responds to this communication, the third party requester of the *inter partes* reexamination may once file written comments within a period of 30 days from the date of service of the patent owner's response. This 30-day time period is statutory (35 U.S.C. 314(b)(2)), and, as such, it cannot be extended. See also 37 CFR 1.947.

If an *ex parte* reexamination has been merged with the *inter partes* reexamination, no responsive submission by any *ex parte* third party requester is permitted.

**All correspondence** relating to this *inter partes* reexamination proceeding should be directed to the **Central Reexamination Unit** at the mail, FAX, or hand-carry addresses given at the end of the communication enclosed with this transmittal.



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**APR 02 2008**

CENTRAL REEXAMINATION UNIT

**EX PARTE REEXAMINATION COMMUNICATION TRANSMITTAL FORM**

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### **DECISION ON REQUEST FOR EX PARTE REEXAMINATION**

Reexamination has been requested for claims 1-24 of U. S. Patent No. 6,892,211 to Hitz et al. issued on May 10, 2005.

The 6,892,211 patent to Hitz was filed on April 12, 2004 and claims priority to June 3, 1993 through a string of continuing applications which includes U.S. Patent No. 5,819,292 to Hitz which is the subject of reexamination control No. 90/008,903.

The 6,892,211 patent claims priority under U.S.C. 120, as a continuation of application serial number 09/954522, now U.S. Patent 6,721,764, filed 11 September 2001, which is a continuation of application serial number 09/153,094, now U.S. Patent 6,289,356, filed 14 September 1998, which is a continuation of application serial number 09/108,022, now U.S. Patent 5,963,962, filed 30 June 1998, which is a continuation of application serial number 08/454,921, now U.S. Patent 5,819,292, filed 31 May 1995, which is a continuation of application serial number 08/071,643, now abandoned, filed 3 June 1993.

A substantial new question of patentability (SNQ) claims 1-24 of U. S. Patent No. 6,892,211 to Hitz, is raised by the present corrected request for Inter Parte reexamination (hereafter the "Request") filed on January 14, 2008 for the reasons indicated below.

#### **Substantial New Question of Patentability**

For "a substantial new question of patentability" (SNQ) to be present, it is only necessary that:

A. The prior art patents and or printed publications raise a substantial question of patentability regarding at least one claim, i.e., the teaching of the prior art patents and printed publications is such that a reasonable examiner would consider the teaching to be important in deciding whether or not the claim is patentable; it is not necessary that the prior art establish a prima facie case of unpatentability; and

B. The same question of patentability as to the claim has not been decided by the Office in a previous examination or pending reexamination of the patent or in a final holding of invalidity by the Federal Courts in a decision on the merits involving the claim.

For any reexamination ordered on or after November 2, 2002, reliance on previously Cited/considered art, i.e., "old art," does not necessarily preclude the existence of a substantial new question of patentability (SNQ) that is based exclusively on that old art. Rather, determinations on whether a SNQ exists in such an instance shall be based upon a fact-specific inquiry done on a case-by-case basis. See MPEP 2642.

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### **Prosecution History**

The 6,892,211 patent to Hitz et al. issued on May 10, 2005. A preliminary amendment was filed 8/26/2004 which canceled claims 1 and 2 and added new claims 3-26.

The Examiner summarized the invention as being “directed to a method and system for maintaining a file system wherein membership in multiple concurrently existing file systems is possible for each block. Root inodes are stored on the disk and in core memory, each constituting a consistent state of the file system, and wherein some blocks in the storage system belong to both consistent states of the file system.” And further being “directed to a method and system for maintaining a file system in memory and on a storage system including one or more hard disks, including root inodes maintained on both the memory and the storage system, each of which points directly and indirectly to a set of blocks on said storage system and storing a consistent state of the file system, wherein some of the blocks are common to both consistent states of the file system.”

The examiners reasons for allowance indicated , “The closest prior art of record, Chutani et al. ("The Episode File System") [which is described in the background of the invention section], teaches a file system which implements filesets, logical file systems that represent connected subtrees and allowing for efficient replication and backup of the file system.” The reasons for allowance noted that in contrast to that claimed, “[h]owever, Chutani et al. fails to anticipate or render obvious the recited feature of maintaining on-disk and incore root inodes, each of which pointing directly and indirectly to blocks, some of the blocks being common between the on-disk and incore root inodes; wherein changes made to the file system are stored on blocks in memory buffers and not pointed to by said on-disk root inode, as in independent claims 3, 11 and 19.” (renumbered as claims 1, 9, and 17 respectively).

Claim 1 of the patent reads as follows:

1. A method of maintaining a file system stored in a memory and on a storage system that includes one or more hard disks, said method comprising steps of:

maintaining an on-disk root inode on said storage system, said on-disk root inode pointing directly and indirectly to a first set of blocks on said storage system that store a first consistent state of said file system; and

maintaining an incore root inode in said memory, said incore root inode pointing directly and indirectly to buffers in said memory and a second set of blocks on said storage system, said buffers and said second set of blocks storing data and metadata for a second consistent state of said file system, said second set of blocks including at least some blocks in said first set of blocks, with changes between said first consistent state and said second consistent state being stored in said buffers and in ones of said second set of blocks not pointed to by said on-disk inode.



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**Prior Art Relied on in the Request**

- Exhibit 1: Quinlan, A Cached WORM File System, Software - Practice And Experience, Vol.21(12), 1289-1299, December 1991 ("Quinlan").
- Exhibit 2: Popek, Walker, The LOCUS Distributed System Architecture, MIT Press, Cambridge, Mass., 1985 ("Popek").
- Exhibit 3: Ylonen, Concurrent Shadow Paging: A new Direction for Database Research, Helsinki University of Technology, TKO-B86, 1992 ("Ylonen")
- Exhibit 4: Margo Ilene Seltzer, File System Performance and Transaction Support, Doctoral Dissertation, UC Berkeley, 1992 ("Seltzer").
- Exhibit 5: Schilling, Design and implementation of a fast file system for Unix with special consideration of technical parameters of optical storage media and multimedia applications, Thesis submitted to Technical University of Berlin on 5/23/1991, translated from German. ("Schilling"). All pages cited are to the English translation.
- Exhibit 6: Leffler, McKusick, et. al., 4. 3BSD Unix Operating System, Addison-Wesley Publishing Co., 1990 ("Leffler").
- Exhibit 7: Bach, The Design of the Unix Operating System, Prentice Hall, 1990 ("Bach").
- Exhibit 8: Rosenblum, Ousterhoot, The LFS Storage Manager, presented at USENIX Tech. Conf., Anaheim, CA, 1990 ("Rosenblum").
- Exhibit 9: Rosenblum, Ousterhoot, The Design and Implementation of a Log-Structured File System, Proceedings of the 13th ACM Symposium on OS Principles, 1991 ("Rosenblum and Ousterhoot").
- Exhibit 10: Kent, Performance and Implementation Issues in Database Crash Recovery, Ph.D. Dissertation, Princeton University, 1985 ("Kent").
- Exhibit 11: U.S. Pat. No. 5,379,391 to Belsan et al. ("Belsan").
- Exhibit 12: U.S. Pat. No. 5,218,695 to Noveck et al. ("Noveck").
- Exhibit 13: Gray et al., The Recovery manager of the System R Database Manager, ACM, 1981 (Gray).

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Exhibits 1-6 and 8-13 listed above were not considered by the Examiner during prosecution of the application which became the Hitz '211 patent. Exhibit 7 was cited but not discussed during prosecution of the application which became the '211 patent to Hitz.

### **Issues Raised in the Request**

**Issue 1: The Request alleges that an SNQ may be raised by Quinlan (Exhibit 1) with respect to claims 1-24 of the 6,892,211 Hitz patent.**

It is agreed that Quinlan raises an SNQ over claims 1-24 of the '211 patent to Hitz.

Request pages 3-4 and 10-18 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Quinlan that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 3-4 and 10-11 provide an explanation of the relevance of the Quinlan reference with respect to independent claim 1 of the '211 patent.

The request alleges that Quinlan teaches the use of a cache maintaining in-core copies of a subset of the file system (p. 1290) using a copy-on-write technique (pp. 1291-92). After a block is modified via copy-on-write in memory, its directory (inode) is also modified with a pointer to the new location. Id. Periodically, the Quinlan file system atomically advances from one consistent state to another by flushing the contents of the cache to disk, thereby forming a snapshot (p. 1292-95, Fig. 3). The active file system shares unmodified data blocks with the previous snapshots (Quinlan, p. 1292). "In effect, the snapshot and the file system will split apart as the file system is modified." (p. 1294). After a snapshot is taken, the in-core root inode pointing to buffers and new blocks reflects changes from the previous consistent state: "The root of the file system is moved to a write block. Note that changes to the file system are only visible through the new root block; the file system remains unchanged when viewed through the old root." Id. And as is illustrated in Fig. 3.

Quinlan was not previously considered during the examination of the application which became the '211 Hitz patent as Quinlan was not before the examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Quinlan important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Quinlan reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Quinlan discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were

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not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Quinlan raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

**Issue 2: The Request alleges that an SNQ may be raised by Popek (Exhibit 2) in combination with Ylonen (Exhibit 3) with respect to claims 1-24 of the 6,892,211 Hitz patent.**

It is agreed that Popek raises an SNQ over claims 1-24 of the '211 patent to Hitz as presented in the request.

Request pages 4 and 19-27 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Popek that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 4 and 19-20 provide an explanation of the relevance of the Popek reference with respect to independent claim 1 of the '211 patent.

The request alleges that Popek teaches that LOCUS maintains an on-disk inode that contains "page numbers" or pointers to data blocks or to "intermediate node[s]" that point to data blocks Sec. 3.3, pp. 33-34, Sec. 3.4.6, pp. 46-48. "A file is composed of an inode and an associated ordered collection of data blocks." Id. at 34. "Additional mechanism is also present to support large files that are structured through indirect pages that contain page pointers." Sec. 3.4.6, p. 47. The logical pages or data blocks taught in Popek are alleged to represent a consistent state of the LOCUS file system.

Popek teaches that LOCUS maintains an "in-core copy of the disk inode." Sec. 3.4.6, p. 47. LOCUS uses a shadow paging mechanism (copy-on-write) to update files without overwriting data in place, Id. As logical pages (logical blocks) are updated, "it is necessary to keep track of where the old and the new pages are. The disk inode contains the old page numbers. The in-core copy of the disk inode starts with the old pages, but is updated with new page numbers as shadow pages are allocated." Id. As logical pages are updated, they are periodically flushed to a new location on disk. Id. As a result, the in-core inode points to a set of blocks on disk that includes the old unchanged blocks and newly flushed blocks containing changes, as well as to memory buffers that have not yet been flushed. The sum total of these buffers and blocks inherently represents a second consistent state of the LOCUS file system.

Popek was not previously considered during the examination of the application which became the '211 Hitz patent as Popek was not before the examiner during prosecution of the application

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which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Popek important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Popek reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Popek discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Popek raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

**Issue 3: The Request alleges that an SNQ may be raised by Seltzer (Exhibit 4) with respect to claims 1-6, 9-14, 17-22 of the 6,892,211 Hitz patent.**

It is agreed that Seltzer raises an SNQ over claims 1-6, 9-14, 17-22 of the '211 patent to Hitz.

Request pages 5 and 27-34 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Seltzer that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 5 and 27-28 provide an explanation of the relevance of the Seltzer reference with respect to independent claim 1 of the '211 patent.

The request alleges that Seltzer teaches that the LFS file system maintains an on-disk root inode that points directly and indirectly to a first set of storage blocks on disk in a consistent state. *See e.g.* Sec. 5.2.1.3 at p. 59, Sec.6.1.1 at pp.70-71. This is further illustrated in Fig. 5-5, page 59.

Seltzer teaches an in-memory inode containing the physical representation of the file system layout (Sec. 5.2.1.3, p. 59, Fig. 5-5). The in-memory inode "additionally includes lists of buffers and links to other inodes .... The in-memory inode is extended to have a list of transaction-protected buffers in addition to its clean and dirty buffer lists." *Id.* "When a file is written, the new data blocks are appended to the log, and the index structure and indirect blocks are modified (in memory) to contain the new disk address of the newly written block." Sec. 4.1, pp. 31-32. Seltzer thus teaches that the in-memory inode represents a consistent up-to-date state of the file system, pointing directly and indirectly to buffers containing new or modified data as well to the unchanged blocks of data. Seltzer further teaches that "[w]hen writing, LFS gathers many dirty pages and prepares to write them to disk sequentially in the next available segment. At that time, LFS sorts the blocks by logical block number, assigns them disk addresses, and updates the meta-data to reflect their addresses." Seltzer, Sec. 6.1.1, p. 71. Once some buffers holding dirty

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pages (changed data) are flushed to disk blocks, they, together with unchanged blocks extant on disk, constitute a second set of blocks. This second set of blocks, in combination with un-flushed dirty buffers, represent the up-to-date file system in a consistent state.

Seltzer was not previously considered during the examination of the application which became the '211 Hitz patent as Seltzer was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Seltzer important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Seltzer reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Seltzer discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Seltzer raises a substantial new question of patentability as to claims 1-6, 9-14, 17-22 of the '211 patent to Hitz.

**Issue 4: The Request alleges that an SNQ may be raised by Schilling (Exhibit 5) with respect to claims 1-24 of the 6,892,211 Hitz patent.**

It is agreed that Schilling raises an SNQ over claims 1-24 of the '211 patent to Hitz.

Request pages 5-6 and 34-40 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Schilling that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 5-6 and 34-35 provide an explanation of the relevance of the Schilling reference with respect to independent claim 1 of the '211 patent.

The request alleges that the WoFS file system described by Schilling is based on the well-known Unix file structure (as implemented in industry-standard BSD file system), which includes a superblock (root inode), inodes with levels of indirection, and data blocks. Schilling, Sec. 1.2.2, p. 6. WoFS modifies this structure to account for the write once - read many (WORM) nature of the optical media. See e.g. Schilling, Sec. 1.2.3-1.2.4. The modified system retains superblocks, inodes (referred to as generation nodes or gnodes) and data blocks. Id. These structures are present on the WORM disks. See Schilling Sec. 1.2.5. WoFS uses copy-on-write techniques to achieve file system consistency, writing new versions of files to a previously unused area of the medium. See e.g. Schilling, Sec. 1.2.5.1, p. 12



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Schilling teaches a cache memory where an in-core copy of the on-disk file system structure is maintained. See Schilling, Sec. 1.4.2. Changes to the file system occur in the cached file system structure, which thereby diverges from the on-disk structure. See Schilling, Sec.1.2.7. It is alleged that changed data is stored in buffers in the cache before being written to disk.

Schilling teaches that gnode updates are periodically forced to disk. Schilling, Sec.1.2.7.4, p. 20. It is alleged that updated gnodes are buffered in the cache before being written to disk.

Schilling further teaches that the superblock is written to disk after data blocks and intermediate gnodes. Schilling, Sec. 1.2.7.2, p. 19. It is alleged that the updated superblock, pointing to buffered and on-disk gnodes and data blocks, is buffered in the cache before being forced to disk.

Schilling was not previously considered during the examination of the application which became the '211 Hitz patent as Schilling was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Schilling important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Schilling reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Schilling discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Schilling raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

**Issue 5: The Request alleges that an SNQ may be raised by Leffler (Exhibit 6) in combination with Bach (Exhibit 7) with respect to claims 1-4, 9-12, 17-20 of the 6,892,211 Hitz patent.**

It is agreed that Leffler and Bach raise an SNQ over claims 1-4, 9-12, and 17-20 of the '211 patent to Hitz.

Request pages 6-7 and 41-45 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Leffler and Bach that was not present in the prosecution of the application which became the '211 patent to Hitz.

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The request pages 6-7 and 41 provide an explanation of the relevance of the Leffler and Bach references with respect to independent claim 1 of the '211 patent.

The request alleges that Leffler describes maintaining an on-disk root inode pointing directly and indirectly to a set of blocks on disk in a consistent state: (Figure 7.6, sec 7.2).

Leffler discusses that a copy of the root inode (inode describing the root directory) and copies of lower level inodes and data blocks are maintained in memory (in-core) (Sec. 7.4, pp. 203-207). When the system writes new data, it allocates buffers in memory for the new data (See Sec. 7.5, pp. 211-12). Periodically, the buffers are flushed to disk during a sync process (See Sec. 7.4, p. 207).

It is alleged that the incore root inode in Leffler is updated to point to the new buffers and blocks. Bach (a conventional well known Unix textbook) supports the allegation and discloses that in Unix, the in-core inode is updated when data blocks change. Bach, Sec. 4.1, pp. 62-63.

Leffler was not previously cited and Bach was cited but not discussed during prosecution of the application which became the '211 patent to Hitz. Leffler and Bach were not previously considered during the examination of the application which became the '211 Hitz patent as Leffler was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Leffler important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Leffler reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Leffler discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Leffler raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

**Issue 6: The Request alleges that an SNQ may be raised by the combination of Rosenblum, Ylonen and Leffler with respect to claims 1-24 of the 6,892,211 Hitz patent.**

It is agreed that Rosenblum raises an SNQ over claims 1-24 of the '211 patent to Hitz.

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Request pages 7 and 46-53 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Rosenblum that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 7 and 46 provide an explanation of the relevance of the Rosenblum references with respect to independent claim 1 of the '211 patent.

The request alleges that Rosenblum maintains an on disk root inode. The format of the inodes and indirect blocks is the same as in the standard Unix file system, which allegedly provides for root inodes that directly and indirectly point to data blocks (Sec. 4.2.1, p.6).

Rosenblum teaches that file system metadata, including inodes, and data blocks are cached in memory, where changes are accumulated before being forced to disk (Sec. 4.1, p. 5). Before being forced to disk, the modified in-core root inode allegedly points to buffers in memory containing modified data, new blocks already forced to disk, and old blocks with unmodified data.

Rosenblum, Ylonen, and Leffler were not previously considered during the examination of the application which became the '211 Hitz patent as Rosenblum, Ylonen , and Leffler was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Rosenblum, Ylonen, and Leffler important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Rosenblum, Ylonen , and Leffler reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Rosenblum, Ylonen , and Leffler discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Rosenblum, Ylonen , and Leffler raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

**Issue 7:        The Request alleges that an SNQ may be raised by the combination of Kent, Popek and Ylonen with respect to claims 1- 3, 5-11, 13-19, 21-24 of the 6,892,211 Hitz patent.**

It is agreed that Kent raises an SNQ over claims 1-24 of the '211 patent to Hitz.



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Request pages 7-8 and 54-65 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Kent that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 7-8 and 54-55 provide an explanation of the relevance of the Kent reference with respect to independent claim 1 of the '211 patent.

The request alleges that Kent discloses that database structures include the root, which points to the global version of each mapping page: "That is, the root defines the most recent, consistent state of the page table (Just as the page table defined the most recent, consistent state of the logical database.)" (Kent, p. 41, Fig. 3-4) and are alleged to be equivalent to root inode, intermediate inodes, and data blocks in a file system. These structures reside on disk and in-core in cache memory (Kent, pp. 28-31, 89-90).

The cache memory in Kent contains buffers that hold modified data blocks. Kent, p. 90. Kent describes a number of "primitives" - operations that allow the shadowing algorithm CRMshadow to "maintain[] buffers and.., flush[] them to disk." Kent, Sec. 3.5.2, p. 34.

The structure shown in Fig. 3-4 is held in-core, with the root pointing directly and indirectly to buffers storing metadata (such as page tables) and data. Before it is flushed to disk, the root also points to updated blocks on disk. Kent, Sec. 3.5.2, pp. 40-43. Kent teaches an atomic commit operation by flushing the root from cache memory to disk: "The final step (flushing the root) must be executed atomically, as it defines the line between transaction commit and abort. To commit, a transaction first flushes the subtree that corresponds to its modifications, and then the root." Kent, Sec. 3.5.2, pp. 42-43, pp. 46-47.

Kent, Popek and Ylonen were not previously considered during the examination of the application which became the '211 Hitz patent as Kent was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Kent important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Kent reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Kent discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Kent raises a substantial new question of patentability as to claims 1-24 of the '211 patent to Hitz.

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**Issue 8: The Request alleges that an SNQ may be raised by the combination of Rosenblum and Ousterhooht in view of Leffler with respect to claims 1-6, 9-14, 17-22 of the 6,892,211 Hitz patent.**

It is agreed that Rosenblum and Oustershoot raises an SNQ over claims 1-6, 9-14, 17-22 of the '211 patent to Hitz.

Request pages 8 and 65-71 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Rosenblum and Oustershoot that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 8 and 65-66 provide an explanation of the relevance of the Rosenblum and Oustershoot references with respect to independent claim 1 of the '211 patent.

The request alleges that Rosenblum and Oustershoot maintains an on disk root inode. The format of the inodes and indirect blocks is allegedly the same as in the standard Unix file system, which allegedly points to data blocks. See Rosenblum and Ousterhout, Sec. 3.1, p. 6.

Rosenblum and Ousterhout teaches that file system metadata, including inodes, and data blocks are cached in memory, where changes are accumulated before being forced to disk. Rosenblum and Ousterhout, Sec. 3, p. 3. Before being forced to disk, the modified in-core root inode allegedly points to buffers in memory containing modified data, modified blocks, and old blocks with unmodified data.

Rosenblum and Oustershoot and Leffler were not previously considered during the examination of the application which became the '211 Hitz patent as Rosenblum and Oustershoot and Leffler was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Rosenblum and Oustershoot and Leffler important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Rosenblum and Oustershoot and Leffler reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Rosenblum and Oustershoot and Leffler discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

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Accordingly, Rosenblum and Oustershoot and Leffler raises a substantial new question of patentability as to claims 1-6, 9-14, 17-22 of the '211 patent to Hitz.

**Issue 9: The Request alleges that an SNQ may be raised by Belsan (Exhibit 11) with respect to claims 1, 9, and 17 of the 6,892,211 Hitz patent.**

It is agreed that Belsan raises an SNQ over claims 1, 9, and 17 of the '211 patent to Hitz.

Request pages 8-9 and 71-74 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Belsan that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 8-9 and 71-72 provide an explanation of the relevance of the Belsan reference with respect to independent claim 1 of the '211 patent.

The request alleges that Belsan teaches a mapping table and a copy table, the mapping table (root inode) is maintained on disk and contains pointers to data blocks stored on disk. Col. 7:46-66. The mapping table is stored (backed up) on disk. Col. 6:36-39. Mapping tables store a plurality of pointers identifying data blocks. Col. 8:64-9:27, Figs. 2 and 3. The disclosed mapping table points to blocks that store a consistent state.

Belsan further teaches that the mapping table is uploaded and modified in cache memory during write transactions, constituting an incore root inode. Contents of the on-disk mapping table are loaded into a cache hash table. See e.g. Col. 13:54-59. The disclosed file system uses copy-on-write, so that a block to be written is first copied into cache memory and then is re-written to a new location on disk. Col. 12:22-38; 13:42-14:6.

During a sequence of write operations, the cached mapping table and associated copy table point to some data buffers in cache (buffers that are currently being written) as well as some modified blocks. The cached mapping table also points to unmodified blocks on disk, which are also pointed to by the un-updated mapping table stored on-disk.

Belsan was not previously considered during the examination of the application which became the '211 Hitz patent as Belsan was not before the examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Belsan important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Belsan reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Belsan discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were

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not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Belsan raises a substantial new question of patentability as to claims 1, 9, and 17 of the '211 patent to Hitz.

**Issue 10: The Request alleges that an SNQ may be raised by Noveck (Exhibit 12) with respect to claims 1, 9, and 17 of the 6,892,211 Hitz patent.**

It is agreed that Noveck raises an SNQ over claims 1, 9, and 17 of the '211 patent to Hitz.

Request pages 9 and 74-76 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Noveck that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 9 and 74 provide an explanation of the relevance of the Noveck reference with respect to independent claim 1 of the '211 patent.

The request alleges that Noveck discloses an on-disk Unix inode, with direct and indirect blocks. Col. 3:29-35, 3:60-63. Noveck further teaches an in-core inode, which is an image of the on-disk inode, maintained in cache memory. Col. 6:25-31. As data in the file system is modified, the in-core structure differs from the on-disk inode and data. Col. 7: 14-24. The in-core inode points to blocks and buffers that have been modified since the on-disk inode was written.

Noveck was not previously considered during the examination of the application which became the '211 Hitz patent as Noveck was not before the examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Noveck important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Kent reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Noveck discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Noveck raises a substantial new question of patentability as to claims 1, 9, and 17 of the '211 patent to Hitz.

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**Issue 11: The Request alleges that an SNQ may be raised by Gray (Exhibit 13) with respect to claims 1-6, 9-14, 17-22 of the 6,892,211 Hitz patent.**

It is agreed that Gray raises an SNQ over claims 1-6, 9-14, and 17-22 of the '211 patent to Hitz.

Request pages 9-10 and 76-81 are hereby incorporated by reference from the request for reexamination for their explanation of the teaching allegedly provided in Gray that was not present in the prosecution of the application which became the '211 patent to Hitz.

The request pages 9-10 and 76-77 provide an explanation of the relevance of the Gray reference with respect to independent claim 1 of the '211 patent.

The request alleges that Gray discloses a copy of a page table is (equivalent to an inode) and data pages are (equivalent to data blocks) as well as a directory root which is (equivalent to root inode) is cached in memory and resident on disk ( Sec. 2.1, Sec. 2.7, Fig. 10). Gray teaches that the database takes periodic checkpoints, representing consistent system states by flushing the cache to disk and then writing to disk an updated directory root (Sec. 2.7, Fig. 10). The request alleges that the in-memory copy of the directory root points to buffers and blocks representing the database in a present consistent state. Changes between the present consistent state and the check pointed previous state are allegedly stored in buffers and blocks.

Gray was not previously considered during the examination of the application which became the '211 Hitz patent as Gray was not before he examiner during prosecution of the application which became the '211 patent. Given the above teachings there is a substantial likelihood that a reasonable examiner would consider Gray important in deciding the patentability of the claims of the '211 patent during prosecution of the application which became the '211 patent.

The Gray reference was not before the examiner during prosecution of the application which became the '211 patent (i.e., the teachings are "new"). The teachings of Gray discussed herein are not cumulative to any written discussion on the record of the teachings of the prior art, were not previously considered nor addressed during a prior examination, and the same question was not the subject of a final holding of invalidity in the Federal Courts. A reasonable examiner would consider the teachings important in determining whether or not claim 1 is patentable.

Accordingly, Gray raises a substantial new question of patentability as to claims 1-6, 9-14, 17-22 of the '211 patent to Hitz.

### **Conclusion**

Claims 1-24 of the '211 Hitz patent will be reexamined.



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**Extensions of time under 37 CFR 1.136(a) do not apply in reexamination proceedings.** The provisions of 37 CFR 1.136 apply only to "an applicant" and not to parties in a reexamination proceeding. Further, in 35 U.S.C. 305 and in 37 CFR 1.550(a), it is required that reexamination proceedings "will be conducted with special dispatch within the Office."

**Extensions of time in reexamination proceedings are provided for in 37 CFR 1.550(c).** A request for extension of time must be filed on or before the day on which a response to this action is due, and it must be accompanied by the petition fee set forth in 37 CFR 1.17(g). The mere filing of a request will not effect any extension of time. An extension of time will be granted only for sufficient cause, and for a reasonable time specified.

The Patent Owner is reminded of the continuing responsibility under 37 CFR 1.565(a) to apprise the Office of any litigation activity, or other prior or concurrent proceeding, involving U.S. Patent No. 6,044,062 throughout the course of this reexamination proceeding. The third party requester is also reminded of the ability to similarly apprise the Office of such activity or proceeding throughout the course of this reexamination proceeding. See MPEP §§ 2207, 2282, and 2286.

This reexamination proceeding has been filed by a third party requester, or has been merged with another proceeding filed by a third party requester. Accordingly, the parties to this reexamination proceeding are reminded that, in accordance with 37 CFR 1.550(f), any document filed by either the patent owner or the third party requester must be served on the other party in the reexamination proceeding (or parties, where two or more third party requester proceedings are merged), **in the manner provided by 37 CFR 1.248**. If the document filed with the Office does not include a proper certificate of service, the document may be refused consideration by the Office. See MPEP 2220 and 2266.03.

37 CFR 1.550(f) provides:

*"The reexamination requester will be sent copies of Office actions issued during the ex parte reexamination proceeding. After filing of a request for ex parte reexamination by a third party requester, any document filed by either the patent owner or the third party requester must be served on the other party in the reexamination proceeding in the manner provided by § 1.248. The document must reflect service or the document may be refused consideration by the Office."*

#### **NOTICE RE PATENT OWNER'S CORRESPONDENCE ADDRESS**

Effective May 16, 2007, 37 CFR 1.33(c) has been revised to provide that:

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The patent owner's correspondence address for all communications in an *ex parte* reexamination or an *inter partes* reexamination is designated as the correspondence address of the patent.

*Revisions and Technical Corrections Affecting Requirements for Ex Parte and Inter Partes Reexamination*, 72 FR 18892 (April 16, 2007)(Final Rule)

**The correspondence address for any pending reexamination proceeding not having the same correspondence address as that of the patent is, by way of this revision to 37 CFR 1.33(c), automatically changed to that of the patent file as of the effective date.**

This change is effective for any reexamination proceeding which is pending before the Office as of May 16, 2007, including the present reexamination proceeding, and to any reexamination proceeding which is filed after that date.

Parties are to take this change into account when filing papers, and direct communications accordingly.

In the event the patent owner's correspondence address listed in the papers (record) for the present proceeding is different from the correspondence address of the patent, it is strongly encouraged that the patent owner affirmatively file a Notification of Change of Correspondence Address in the reexamination proceeding and/or the patent (depending on which address patent owner desires), to conform the address of the proceeding with that of the patent and to clarify the record as to which address should be used for correspondence.

All correspondence relating to this inter partes reexamination proceeding should be directed to:

Mail Stop *Inter Partes* Reexam  
Attn: Central Reexamination Unit  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Please FAX any communications to:  
571-273-9900  
Central Reexamination Unit

Please hand-deliver any communications to:  
Customer Service Window  
Attn: Central Reexamination Unit

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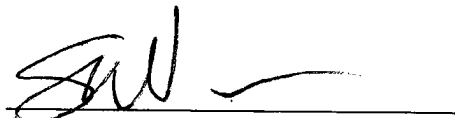
Randolph Building, Lobby Level  
401 Dulany St.  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.

**Telephone Numbers for reexamination inquiries:**

Reexamination and Amendment Practice	(571) 272-7703
Central Reexam Unit (CRU)	(571) 272-7705
Reexamination Facsimile Transmission No.	(571) 273-9900

Any inquiry concerning this communication or earlier communications from the Reexamination Legal Advisor or Examiner, or as to the status of this proceeding, should be directed to the Central Reexamination Unit at telephone number (571) 272-7705.



Scott L. Weaver  
Central Reexamination Unit, Primary Examiner  
Electrical Art Unit 3992  
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Conferees:

ESK  
AD



Approved for use through 11/30/2007. OMB 0651-0031

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Substitute for form 1449A/PTO

**(Use as many sheets as necessary)**

Patent Number	6,892,211
Issue Date	May 10, 2005
First Named Inventor	Hitz et al.
Art Unit	N/A
Examiner Name	N/A
Attorney Docket Number	347155-29

Sheet

1

of

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Attorney Docket Number

**347155-29**

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FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> "Number" <sup>4</sup> "Kind Code" <sup>5</sup> (if known)				

/Scott Weaver/

04/01/2008

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Substitute for form 1449B/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>			
		Patent Number	6,892,211		
		Issue Date	May 10, 2005		
		First Named Inventor	Hitz et al.		
		Art Unit	N/A		
		Examiner Name	N/A		
Sheet	2	of	2	Attorney Docket Number	347155-29

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
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/SLW/		Popek, Walker, <i>The LOCUS Distributed System Architecture</i> , MIT Press, Cambridge, Mass., 1985 ("Popek").	
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/SLW/		Margo Ilene Seltzer, <i>File System Performance and Transaction Support</i> , Doctoral Dissertation, UC Berkeley, 1992 ("Seltzer").	
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/SLW/		Bach, <i>The Design of the Unix Operating System</i> , Prentice Hall, 1990 ("Bach").	
/SLW/		Rosenblum, Ousterhout, <i>The LFS Storage Manager</i> , Computer Science Division, Electrical Engineering and Computer Sciences, University of California, Summer '90 USENIX Technical Conference, Anaheim, California, June 1990. ("Rosenblum").	
/SLW/		Rosenblum, Ousterhout, <i>The Design and Implementation of a Log-Structured File System</i> , Proceedings of the 13th ACM Symposium on OS Principles, 1991 ("Rosenblum and Ousterhout").	
/SLW/		Kent, <i>Performance and Implementation Issues in Database Crash Recovery</i> , Ph.D. Dissertation, Princeton University, 1985 ("Kent").	
/SLW/		Gray et al., <i>The Recovery Manager of the System R Database Manager</i> , ACM, 1981 ("Gray").	

Examiner  
Signature

/Scott Weaver/

04/01/2008